

WHAT IS CLAIMED IS:

1. A system where a cluster of servers constitute a multiplicity of cluster nodes which are all connected to each other to service multiple PC users via a public network comprising:

- 5 (a) shared storage means virtually providing a disk resource (Quorum) of stored data, said means being seen as a single quorum repository of a Microsoft Cluster Service Program;
- 10 (b) local quorum disk resource means which are positioned in each node of said cluster of servers and which operate as a single quorum;
- (c) means to utilize the remaining nodes of the cluster when a node is disconnected or inoperative.

2. The system of claim 1 which includes:

(d) means to convert said multiplicity of cluster nodes into a single node with its own local quorum disk resource;

5 (e) means to troubleshoot said single node to find the cause of its inoperability.

3. The system of claim 1 which includes:

(dx1) means to sense a network outage which severs said cluster into two partitions;

5 (dx2) means to enable the remaining group holding the majority of nodes to continue in operable activity.

4. The system of claim 3 which includes:

(dx3) means to take off-line the non-majority group of nodes.

5. A cluster system of "M" server nodes operating with an (MSCS) Microsoft Cluster Service program and able to revive and reconstitute a majority node set cluster after a node failure comprising:

5 (a) a majority node set quorum resource servicing said server nodes when a majority of the cluster nodes are operating and are all in communication with each other;

10 (b) means to bring back the cluster on-line after a failure causing non-utilization of one or more nodes.

6. Th clust r system of claim 5 wh r said means
(b) to bring back the cluster on-line includes:

5 (b1) means to detect whether the system is
operating as a majority node set, a shared
disk quorum or as a local quorum.

7. The system of claim 6 which indicates system
operation as a majority node set then further includes:

(b1a) means to revive and put back
on-line non-functioning server nodes;
5 (b1b) means to reconstitute
sufficient server nodes to establish
a majority node set cluster.

8. The system of claim 7 wherein said means (b1b)
to reconstitute includes:

5 (b1ba) establishing an operating
cluster where $M/2+1$ is the
number of operational server
nodes.

9. In a cluster system of "M" server nodes operating with an (MSCS) Microsoft Cluster Service Program, a method for reviving and reconstituting a majority node set cluster after a node failure comprising
5 the steps of:

- (a) executing a detection phase wherein a Cluster Verifier determines the type of clustering mechanism being deployed;
- 10 (b) institute a Revival Phase, when the operating cluster nodes fall below $M/2+1$, in order to allow a user to manually restart the cluster;
- 15 (c) instituting a Reconstitution Phase, when the prior non-operating cluster nodes are operational and ready to rejoin said cluster.

10. Th method of claim 9 wh rein st p (c) includes
the steps of:

(c1) terminating said Revival phase; and

(c2) reconnecting said newly restored
operational nodes back into said cluster.

5